

Two new *Pomaderris* (Rhamnaceae) from south-eastern Australia

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Introduction

Pomaderris, with c. 70 species, is the largest genus of the Rhamnaceae in Australia. It is largely confined to this country, with 8 species (3 or 4 endemic) also occurring in New Zealand. Preparation of accounts for state floras and on-going work on a complete revision of the genus for the *Flora of Australia* (Thiele *et al.* in prep.) has resulted in a number of publications seeking to resolve the numerous taxonomic problems and to elucidate the relationships within the genus (e.g. Millot & McDougall 2005; Ross 1990; Walsh 1988, 1989, 1990a, 1990b, 1992, 1994, 1999; Walsh & Coates 1997). Subsequent scrutiny of specimens not properly accounted for in these works, and subsequent fieldwork has led to the conclusion that some of these can be accounted for by erecting 2 new species. They are here described.

Pomaderris buchanensis N.G.Walsh, *sp. nov.*

Species affinis *P. oblongifoliae* N.G.Walsh *et* *P. asperae* DC., *a primo foliis majoribus, serratis, indumento crassioribus differt, a secundo foliis minoribus, indumento tenuiore, subter foliis densiore, inflorescentia paucifloribus compositis differt.*

Type: VICTORIA. Snowy River, c. 500 m upstream of confluence with Buchan River, 2.xii.2003, N.G.Walsh 5921 (holotype: MEL 2212498; isotype: CANB, NSW).

Shrub to c. 4 m high. Young stems densely covered with fine, rusty stellate hairs (c. 0.1–0.2 mm across). Leaves narrowly ovate or lanceolate, rarely narrow-elliptic, (35–)50–80 mm long, 10–23 mm wide; base obtuse; margins irregularly serrate, or shallowly sinuate, or entire, flat or very weakly recurved; apex obtuse or rarely acute; adaxial lamina with scattered stellate hairs, rarely quite glabrous or moderately densely hispid; primary lateral veins usually strongly impressed, secondary veins obscure; abaxial lamina entirely covered with dense stellate hairs, rusty at first, but whitening with age; midrib and lateral veins prominent; petiole 4–8 mm long. *Stipules* linear, 2–3.5 mm long, caducous. *Inflorescences* of loose, slender, terminal and upper-axillary panicles to c. 10 cm long, comprising numerous nearly umbellate cymes, each of c. 4–10 flowers; bracts linear, 1–2.4 mm long, caducous;

Abstract

Two new species of *Pomaderris* (Rhamnaceae: Pomaderrae) are described from south-eastern Australia. *Pomaderris buchanensis* N.G.Walsh appears to be confined to scrubs inhabiting rocky banks of the Snowy River in the vicinity of Buchan. It appears to be most closely related to *Pomaderris aspera* D.C. and *P. oblongifolia* N.G.Walsh. *Pomaderris viridis* N.G.Walsh is a narrow-range endemic of south-eastern New South Wales, occurring in moist forests, sometimes along watercourses. Its nearest congeners appear to be *P. aspera* and *P. cinerea* Benth. Both of the new species are considered to be rare.

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Figure 1. *Pomaderris buchanensis* holotype (MEL 2212498)

pedicels 1.5–3 mm long at anthesis, elongating to c. 5 mm long in fruit. *Flowers* pale greenish or yellowish, often mottled crimson; externally densely covered with fine rusty stellate hairs; hypanthium c. 1.2 mm diam., 1.5 mm long at anthesis; sepals 1.2–1.5 mm long, persisting on ripening fruits; petals absent; stamens 1–1.5 mm long; anthers c. 0.5 mm long; ovary inferior, summit covered with fine stellate hairs; style glabrous, 0.7–1.3 mm long, 3-branched from near midway. *Fruit* a 3-partite schizocarp, c. 2.5 mm long, obovoid, dark brown, apex obtuse, sometimes shortly apiculate; torus in the upper third; operculum \pm half to two-thirds length of fruitlet; seed c. 2 mm long (only 1 sparsely fruiting specimen seen). Flowers November and December (3 records). Fig. 1.

Representative specimens (7 specimens examined): **VICTORIA.** Musk Creek – Snowy River junction, 18.ix.1979, S.J. Forbes 324 (MEL); Snowy River c. 0.6 km upstream of Snowy – Buchan River confluence, 27.xi.1990, N.G. Walsh 3018 (MEL); Snowy River c. 3 km upstream of Snowy – Buchan River confluence, 27.xi.1990, N.G. Walsh 3014 (MEL); Snowy River at Long Point, 2.viii.2002, N.G. Walsh 5576 (MEL).

Distribution and Conservation Status: Collected from banks of the Snowy River between Tulloch Ard Gorge (c. 20 km NE of Buchan) and at least as far downstream as Long Point (c. 20 km SE from Buchan). All populations of *P. buchanensis* are reserved within the Snowy River National Park. Its Risk Code is assessed to be rare (2Rc, *sensu* Briggs & Leigh 1996), or vulnerable (VU Ca9i0; D1+2) *sensu* IUCN (2001), based on the small total population size (estimated at less than 1000 plants) and geographic restriction (area of occupancy less than 20 km²).

Habitat: Locally common on rocky banks of the river at about present-day flood-level, sometimes forming pure stands of 50 or more plants. Associated species include *Acacia boormanii* Maiden, *A. dealbata* Link, *Bursaria spinosa* Cav., *Calytrix tetragona* Labill., *Dodonaea rhombifolia* N.A.Wakef., *D. viscosa* Jacq., *Leptospermum brevipes* F. Muell., *Pomaderris aspera*.

Notes: Initially believed to be a hybrid involving *P. aspera* and *P. oblongifolia* and referred to as such in Walsh (1999, p. 96), the former a widespread species in south-eastern Australia, the latter a localised endemic

Table 1. Comparison of a range of measurements for *Pomaderris* species mentioned in text.

	<i>P. aspera</i>	<i>P. oblongifolia</i>	<i>P. buchanensis</i>	<i>P. cinerea</i>	<i>P. viridis</i>
Leaf length (mm)	40–120	20–60	35–80	15–60	20–55
Leaf width (mm)	20–60	6–15	10–23	7–28	15–30
Leaf margin	serrulate	entire	irregularly serrate to shallowly sinuate	entire	irregularly serrate
Leaf indumentum density adaxial lamina	glabrous to sparse	glabrous to dense	sparse, rarely glabrous	very dense	sparse to moderately dense
Leaf indumentum density abaxial lamina	dense to moderately dense, rarely sparse	very dense	very dense	very dense	sparse to moderately dense
Trichome diameter abaxial lamina (mm)	0.4–0.6	0.2–0.4	0.4–0.5	0.1–0.2	0.3–0.5
Sepals persistence	persistent	persistent	persistent	deciduous	deciduous
Hypanthium length (mm)	0.5–1	1–1.2	c. 1.5	0.5–0.8	0.3–0.5
Sepal length (mm)	1.5–2	1.2–1.7	1.2–1.5	1.2–1.8	1.2–1.5
Inflorescence length (mm)	5–35	1–5	1–10	2–6	5–8



HOLOTYPE
NATIONAL HERBARIUM OF VICTORIA (MEL)
Pomaderris viridis Walsh
Determined: N.G. Walsh 2006

NATIONAL HERBARIUM OF VICTORIA (MEL)
MELBOURNE, AUSTRALIA

MEL 2023503



234 RHAMNACEAE
Pomaderris

Coll.: Walsh, N.G. 3930 Date: 24 Sep 1994

AUSTRALIA: NEW SOUTH WALES

Locality: South Coast/Southern Tablelands. Coolangubrah
State Forest, N bank of Reedy Creek,
Lat.: 36°59'07"S Long.: 149°33'20"E
Alt.: 230m

Notes: Growing on rocky bank of creek, S aspect. Granite
geology.
Shrubs or small trees to c. 5 m high. Leaves green above,
grey-green beneath.
Occasional in and between stands of *P. aspera* and *P.*
cinerea, which are abundant for c. 100 m or more along
creek.
Dupls. CANB, NSW

NATIONAL HERBARIUM OF
VICTORIA (MEL). AUSTRALIA

Figure 2. *Pomaderris viridis* holotype (MEL 2023503)

of the Snowy and Little Rivers. Although confined to the same catchment as *P. oblongifolia* it is rarely found in very close proximity to it and is known to occur at least 30 km distant from the nearest occurrence of that species. The entirely stellate indumentum, persistent sepals and linear stipules and bracts place it in section *Apetalae* (Walsh & Coates 1997) to which both *P. aspera* and *P. oblongifolia* are referred. It differs most obviously from *P. aspera* in the smaller leaves with finer, denser indumentum on the lower surfaces of the leaves, and the fewer-flowered inflorescences. From *P. oblongifolia* it differs in having larger leaves that are somewhat serrate and a coarser indumentum (Table 1).

Given the intermediacy of characters between those two species, it seems likely that it is of hybrid origin, but the consistency of form and largely allopatric (with respect to *P. oblongifolia*) distribution strongly suggest that it has evolved to be a true-breeding species.

Etymology: The epithet refers to the known occurrence of the species, in the vicinity of the township of Buchan.

***Pomaderris viridis* N.G.Walsh, sp. nov.**

Fortasse hybrida characteribus inter P. asperam DC. et P. cineream Benth. A primo foliis minoribus tenuioribus et sepalis deciduis differt, a secundo indumento multo sparsiore et foliis leniter serratis differt.

Type: NEW SOUTH WALES. Coolangubra State Forest, N bank of Reedy Creek, 24.ix.1994, N.G. Walsh 3930 (holotype: MEL; isotype: CANB, NSW)

Pomaderris sp. C *sensu* G. Harden, *Fl. New South Wales* 1: 365 (1990); Jacobs & Pickard (1981).

Shrub or small tree 2–5 m high. Young stems densely covered with pale stellate hairs (c. 0.2–0.4 mm across). Leaves ovate to elliptic, (20–)25–45(–55) mm long, (15–)18–25(–30) mm wide; rather thin-textured; base obtuse; margins irregularly serrate or crenate, or rarely, quite entire, flat or margins very weakly recurved; apex obtuse; adaxial lamina evenly covered with stellate hairs but the lamina remaining visible beneath the indumentum; primary lateral veins weakly impressed, secondary veins not developed, the internerve space occupied by a regular fine reticulum; abaxial lamina lightly covered with pale stellate hairs, the lamina quite apparent beneath; petiole 4–9 mm long. Stipules very narrowly triangular or linear, 3–5 mm

long, caducous. Inflorescences of slender, terminal and upper-axillary panicles mostly 5–8 cm long, composed of numerous umbellate cymes, each of c. 4–10 flowers; bracts ovate to narrowly triangular, 1–2 mm long, deciduous; pedicels 1.5–3 mm long. Flowers cream to pale yellowish-green; externally densely covered with fine grey stellate hairs; hypanthium 0.8–1 mm diam., 0.3–0.5 mm long at anthesis; sepals 1.2–1.5 mm long, deciduous; petals absent; stamens c. 1 mm long; anthers c. 0.7 mm long; ovary \pm half-inferior, summit covered with fine stellate hairs and sometimes a few longer simple hairs; style glabrous, 0.7–1 mm long, 3-branched from midway or nearer base. Fruit a 3-partite schizocarp, 2.7–3 mm long, obovoid to ellipsoid, dark brown, apex obtuse, shortly apiculate; torus in lower third or quarter; operculum not developed, or very small at base of inner face of fruitlet; seed released by medial split of ventral face of fruitlet, 1.5–1.7 mm long. Flowers November (2 records). Fig. 2.

Representative specimens (11 specimens examined): **NEW SOUTH WALES.** Reedy Creek, Coolangubra State Forest, 1.ix.1983, A. Nunnink 575 (MEL, NSW); Reedy Ck, Coolangubra State Forest, 15.xi.1984, R. Shiels 448 & R.M. Allen (MEL, NSW); Wadbilliga National Park, Yankees Creek, 19.iv.1992, I. Crawford 1758 (CANB, MEL, NSW); Brogo, c. 100 m above Brogo River, 12.x.1995, N.G. Walsh 4042 (MEL); Upper Cobargo Rd, 12 km NNW of Bega, 5.ii.1996, J. Miles s.n. (MEL).

Distribution and Conservation Status: Known from a few localities in south-eastern New South Wales, in an area approximately bounded by the settlements of Bemboka, Brogo and Towamba. Specimens and field observations indicate that plants may occur singly or abundantly in thickets. *Pomaderris viridis* is reserved within Wadbilliga National Park. Its conservation status is tentatively assessed as rare (2Rc, *sensu* Briggs & Leigh 1996) or vulnerable (VU Ca9i0; D1+2) *sensu* IUCN (2001).

Habitat: Commonly occurs in rocky sites, usually in the vicinity of watercourses, but also collected from moist forest on mid-slopes of low ridgelines. Soils are loamy, mainly derived from sedimentary parent material. Typically associated species include *Acacia floribunda* (Vent.) Willd., *A. silvestris* Tindale, *Angophora floribunda* (Sm.) Sweet, *Beyeria lasiocarpa* Muell. Arg., *Eucalyptus elata* Dehnh., *E. globoidea* Blakely, *E. maidenii* F.Muell., *E. smithii* R.T.Baker, *E. viminalis* Labill., *Philothea trachyphylla* (F.Muell.) Paul G.Wilson, *Pomaderris brogoensis* N.G.Walsh, *P. cinerea*, *P. aspera*.

Notes: Most collections of *P. viridis* indicate association with *P. aspera* and *P. cinerea*, and it is believed to be likely that it is either an F1 hybrid with these two species as parents, or it is a true-breeding species of hybrid ancestry. *Pomaderris aspera* is a common and widespread species in south-eastern Australia whereas *P. cinerea* is a species of limited distribution in south-eastern New South Wales – its distribution fully encompassing that of *P. viridis*. *Pomaderris viridis* differs from *P. aspera* in its smaller, thinner-textured leaves and in its deciduous sepals. From *P. cinerea* it differs in having a much sparser indumentum and leaves that are usually slightly serrate (Table 1).

At the Reedy Creek, Coolangubra State Forest site (e.g. Nunnink 575), *P. viridis* occurs as a dense stand between and contiguous with stands of *P. aspera* and *P. cinerea*. The plants in this population are morphologically uniform and the characters of indumentum, leaf size and shape are quite intermediate between those two species. Limited growth trials at the Royal Botanic Gardens, Melbourne have shown that the seed of *P. viridis* is viable, and appears to breed true with no apparent segregation of seedlings toward either putative parent species suggesting that, if of hybrid ancestry, it is now 'stabilised' and a true-breeding species. However these observations must be regarded as preliminary as they are based on observations of only 5 plants that failed to develop to maturity. It is because *P. viridis* is known from a number of sites and is morphologically distinct and uniform that it is being formally described here. Amongst the many thousands of specimens of *Pomaderris* in Australian herbaria that have been examined in the course of preparing an account of the genus, a few have been tentatively identified as hybrids between a number of good species (e.g. *P. lanigera* (Andrews) Sims x *P. intermedia* Sieber ex. DC., *P. aspera* x *P. oraria* F. Muell. ex Reissek subsp. *calicicola* N.G. Walsh), but *P. viridis* occurs with a frequency and morphological consistency that sets it apart from this disparate group. If it is a hybrid, it is the only hybrid known so far between members of different sections (*P. aspera* is a member of section *Apetalae* while *P. cinerea* is a member of section *Pomaderris*; Walsh & Coates 1997). Further research is encouraged to verify the status of *P. viridis* as a hybrid or a true-breeding species.

Etymology: The epithet (Latin: *viridis* = green) refers to the general aspect of the plant. The leaves of this species are less strongly discoloured than they are in most species of *Pomaderris* and the indumentum is relatively sparse, exposing the green epidermis of both upper and lower surfaces.

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